

## Claims

[1] A compact thermal exchange device for thermo-electric cooling mode, the device comprising:

- a thermal electric cooling unit formed around a center of the compact thermal exchange device;
- two plates in the thermal electric cooling unit, each of the plates being formed on an upper side and a lower side of the unit, respectively;
- two housing walls, each of the housing walls being installed on the upper side and the lower side of the thermal electric cooling unit, respectively;
- a plurality of heat pipes directly inserted into the plates;
- a plurality of fins formed on the heat pipes;
- an external fan provided over the fins; and
- an internal fan provided under the fins.